

Colorado State University Combined Research and Extension Plan of Work 2020-2024

Status: Final
Date: 07/17/2019

I. Plan Overview

1. Executive Summary

The Agricultural Experiment Station (AES) and Extension at Colorado State University are committed to excellence in basic and applied research and translation of this research through Extension programs to crop (including ornamental) and animal (including equine) agriculture. Extension will continue to emphasize non-formal education and transfer of knowledge to audiences throughout the state, based on research information from the AES and in collaboration with the colleges of Agricultural Sciences, Health & Human Sciences, Engineering, Veterinary Medicine and Natural Resources. Programs will emphasize best management practices in addressing issues that affect Coloradans.

4-H Youth Development

Program Goals: 4-H Youth Development empowers youth to reach their full potential by working and learning in partnership with caring adults. 4-H affects positive change in life skills (including leadership, citizenship, decision making, and communication) and in STEM (including interest, knowledge, and application of science process skills) for youth ages 5 to 18.

Extension, AES, or Integrated: Extension

New Programs, and/or Addressing NIFA Priorities: STEM priority will benefit from available and promised content and resource support from National 4-H Headquarters, Colorado State University, Extension, and county partners.

Ongoing, Consistent, and/or Successful Programs: Colorado State University Extension reaches

Colorado's K-12 youth through 4-H youth development programs in 4-H clubs, after-school and school enrichment. Development of volunteers who provide much of the leadership for 4-H, and private fundraising are associated activities. 4-H Youth Development emphasizes personal growth of young people through experiential learning with well-designed curricula and projects.

Crosscutting or Cross-disciplinary Initiatives: Most 4-H Youth Development programs, while focusing on youth development, are built around content that may be supported by one or more college-based specialists.

Community Development

Program Goals: Community Development outreach works with municipal, county, state, and federal agencies, nongovernmental organizations, and citizens to create dynamic processes that address local and regional needs/issues. Our efforts focus on facilitating community planning processes that engage all stakeholders affected by an issue in ways that lead to better-informed decisions and help communities understand and deal with change. It includes providing information and resource connections, which might include community impact analysis of economic activity or evaluation of the drivers of local economies. This work encourages collaboration to build regional economies and create entrepreneur/business friendly communities. Innovative and collaborative leadership activities/trainings are provided to engage new diverse leaders and strengthen community organizations.

Extension, AES, or Integrated: Integrated

New Programs, and/or Addressing NIFA Priorities: Community Development, is highlighted by the

Vice President for Engagement and Director of Extension.

Ongoing, Consistent, and/or Successful Programs: Colorado communities are changing rapidly as a result of many factors, including loss of agricultural water, influx of retirement populations, development of gas and oil industries, incidence of military deployment, and changes in cultural composition of residents. Communities struggle to develop and maintain resources: human, financial, physical, social, environmental, and political. They also are challenged to provide the organizational capacity to assess, plan, and implement activities to address resource development and management. These issues especially are acute in smaller rural communities. Colorado's rural communities are relatively unique in terms of sparse populations, a high natural amenity and public lands base, a transitory population, and relatively low public service provision. Communities require knowledge to evaluate their resource base, their economic and social service alternatives, and their futures.

Crosscutting or Cross-disciplinary Initiatives: Technologies will be provided through training and technical assistance to Extension agents, as the system views C&ED as a process rather than an issue. The goal is intentionally to integrate C&ED into all issues work.

Crop Management Systems

Program Goals: It is the goal of this Planning & Reporting Unit (PRU) for the producers of Colorado crops to adopt and implement improved, productive, and sustainable agricultural systems that will lead to the success of farms. Furthermore, these producer actions will improve the ability of farm operations to persist and thrive through successive generations of operators. Individuals, families, and communities will all benefit by having a safe, secure and sufficient food supply. Colorado crop producers will accommodate to the growth of demand for local and world crop production without compromising the natural resources upon which agriculture depends.

Extension, AES, or Integrated: Integrated

New Programs, and/or Addressing NIFA Priorities: Global Food Security and Hunger

Ongoing, Consistent, and/or Successful Programs: Molecular biology and genomics of crop plants and their pests; Integrated Pest Management; Wheat breeding, bean breeding and potato breeding programs; Production systems in semi-arid environments with limited water availability. Communicate results through demonstration plots and field days;

Crosscutting or Cross-disciplinary Initiatives: This is a well-organized and highly functioning Extension unit that will maintain its structure and contribute to the NIFA priority goal of global food security.

Energy

Program Goals: (1) Empower Coloradans to make well-informed energy decisions; and (2)

Promote a broad, unbiased understanding of energy issues. Promoting a broad, unbiased understanding of energy issues may result in well-informed energy decisions in the long-term. In the short-term, it may simply uplift the quality of energy dialogue in Colorado.

Extension, AES, or Integrated: Integrated

New Programs, and/or Addressing NIFA Priorities: Clean Energy

Ongoing, Consistent, and/or Successful Programs: Energy Masters, Center for Agricultural Energy (CAE).

Crosscutting or Cross-disciplinary Initiatives: Home & Farm, K-12

Environmental Horticulture

Program Goals: The outreach efforts of the Environmental Horticulture Planning & Reporting Unit (PRU) will provide education and services to encourage the adoption of research-based best management practices (design, plant selection, establishment, and management practices) and diagnostic techniques/services by green industry professionals and the home gardener. Our goal is that professional and lay practitioners will use reasonable inputs of labor, water, fertilizers and pesticides to produce attractive, functional, cost-effective and sustainable ornamental landscapes.

Extension, AES, or Integrated: Integrated

Ongoing, Consistent, and/or Successful Programs: The primary issues addressed by Environmental Horticulture Extension include: ornamental landscapes, diagnostic services, and volunteer engagement.

Emerging issues for consideration include:

- Sustainable landscaping
- "Green" gardening
- Organic/natural landscape management
- Composting/recycling
- Water-wise/water smart gardens
- Youth Gardening
- Wildlife gardening (birds, butterflies)
- Home greenhouses
- Spanish speaking audiences

Crosscutting or Cross-disciplinary Initiatives: Adult and youth audiences.

Individual, Family, and Community Wellbeing

Program Goals: Financial, mental, physical, emotional and relational health are key components of well-being. Stable and successful individuals, families, and communities are important to the growth, development and health of our society. When people are in a state of financial and relational wellness, they are in control, confident and focused. They have greater balance and stability so they can concentrate on the most important tasks at hand such a weathering difficulties and making progress toward their goals. Family and financial stability education creates strong communities.

Extension, AES, or Integrated: Extension

New Programs, and/or Addressing NIFA Priorities: Renewed engagement with CSU Department of

Human Development and Family Studies provides opportunities for new programs engaging field and campus colleagues.

Ongoing, Consistent, and/or Successful Programs: Individual, family and community wellbeing (IFCW) programs seek to provide applied research and Extension education in a coordinated set of programs related to family and financial economic stability. Financial stability of families has been the area of focus for non-nutrition FCS programming. Colorado families' financial instability includes increasing rates of bankruptcy, economic crises and loss of jobs. Family stability is important to the growth, development, and health of our society.

Crosscutting or Cross-disciplinary Initiatives: Consumer economics and human development and family studies are vehicles that can assist 4-H in reaching positive youth development and STEM targets.

Food Systems

Program Goals: Improved technical assistance for agricultural and food producers exploring new marketing channels and alternative business approaches. In addition, CSU will provide facilitation of community discussions around the interface between food and agricultural issues and broader social issues including public health, food safety, the environment and community development.

Extension, AES, or Integrated: Integrated

New Programs, and/or Addressing NIFA Priorities: This team was formed and issues were framed based on a couple of key assumptions that arose among team members as they saw the requests they received from community members change and evolve:

1. Current work teams do not address all the system-oriented issues that in which agriculture and food production play a role.
2. There is a need for more marketing, policy and community development activities directed at food systems that vary from the conventional system used to handle high volume commodity foods.
3. Extension is being asked to play a more significant role in food system planning, including facilitating discussions between consumers, producers and organizations interested in Ag and food issues.

Ongoing, Consistent, and/or Successful Programs: The Food Systems team has come together, drawing from a diverse set of personnel with backgrounds in agriculture, horticulture, food safety, nutrition, community development, and youth education. This team will work to increase literacy on food and Ag issues, facilitate community discussions and assessments on Ag and food issues, provide technical assistance to an increasingly diverse set of food producers and support new market opportunities.

Crosscutting or Cross-disciplinary Initiatives: To formalize and coordinate activities that require interdisciplinary approaches related to emerging issues, this resource team on Food Systems is warranted.

Livestock & Range

Program Goals: The Livestock and Range (L&R) Planning & Reporting Unit (PRU) strives for

rangeland health, improved animal health and production, industry policy and regulation awareness, and economic sustainability using a broad array of methodologies that provides information, skills, and technology to producers and L&R Unit members. This PRU is designed for Extension Programming for livestock producers, ranchers, and rangeland managers who have, or are striving for, a significant portion of their personal income coming from the farm/ranch. These may be small farms/ranches or larger scale operations. Livestock producers may also integrate cropping production systems into their operation.

Extension, AES, or Integrated: Integrated

New Programs, and/or Addressing NIFA Priorities; Global Food Security and Hunger

Ongoing, Consistent, and/or Successful Programs: Extension outreach will span the breadth of the topics of research to assure that industry participants have practical knowledge in modern beef, dairy, and sheep production systems, biosecurity, economic and risk management, and response to policy and consumer changes. Outreach to youth involved in livestock production and judging events will continue as part of experiential learning in 4-H, FFA, and college judging. Producers will realize increased prices and lower cost of production. Consumers will benefit from higher human nutritional values of food. AES will lead research on animal production systems and reproductive efficiency.

Crosscutting or Cross-disciplinary Initiatives: Reorganization of Planned Programs pulls apart animal production systems and plant production systems. The work will integrate Extension education in disseminating research results. CSU Extension will:

Deliver workshops and educational classes for producers;
Provide individual counseling for producers and clientele on specific animal production problems.

Cross-cutting or Cross-disciplinary Initiatives: Research on animal production systems and reproductive efficiency.

Natural Resources

Program Goals: The Natural Resources Planning & Reporting Unit (PRU) members will work together to develop and implement high quality educational programs and tools to ensure a high quality of life for Colorado citizens.

Extension, AES, or Integrated: Integrated

New Programs, and/or Addressing NIFA Priorities: The Natural Resources PRU is focused on how best to manage our landscapes from the perspective of plants, animals, soils, water, and pests. Our goal is to protect these resources through our programming efforts, with special emphasis on native species.

Ongoing, Consistent, and/or Successful Programs: AES and Extension programs address the growing competition for finite water, land, and air resources in a state with a growing human population by:

Educating agricultural and resource industry professionals;
Researching technical and economic issues related to improved resource utilization;
Enhancing international competitiveness.

Crosscutting or Cross-disciplinary Initiatives: Nutrient management and odor and dust control.

Nutrition, Food Safety & Health

Program Goals: The goal of this PRU is to promote adoption of healthful eating and activity patterns and ensure an abundant and safe food supply for all. Adoption of healthful eating and activity patterns can enhance the overall health and wellbeing of children, youth, adults, and the growing senior population. Adoption of food safety knowledge and safe food handling practices will ultimately reduce the incidence of foodborne disease in Colorado, especially among the most vulnerable populations (infants, young children and individuals who are immuno-compromised through aging, medical intervention, and illness). Through various programs, CSU Extension contributes to the statewide efforts to increase fruit

and vegetable consumption, increase physical activity, and decrease overweight/obesity risk in Colorado.

Extension, AES, or Integrated: Integrated

New Programs, and/or Addressing NIFA Priorities: Planned Programs are reorganized to again combine Nutrition and Food Safety work in this category.

Ongoing, Consistent, and/or Successful Programs:

- Food safety training for food service managers and employees
- Food safety education for high-risk audiences, their caregivers, and health care professionals
- Food safety information for consumers including Farmers' Market vendors and their customers.
- Nutrition and Health Promotion programs provide research-based nutrition and health education to a variety of audiences across Colorado in an effort to promote healthful nutrition, activity and lifestyle behaviors.

Cross-cutting or Cross-disciplinary Initiatives: AES food safety research emphasizes pre-harvest management of livestock to prevent transmission of human pathogens in livestock production and handling and post-harvest detection and management systems to prevent contamination of meat and plant products with human pathogens.

2. FTE Estimates

Year	1862 Extension	1862 Research
2020	130.0	75.0
2021	130.0	75.0
2022	130.0	75.0
2023	130.0	75.0
2024	130.0	75.0

II. Merit / Peer Review Process

1. The Merit Review Process that was employed for this year

Internal University Panel

External Non-University Panel

Combined External and Internal University External Non-University Panel

2. Brief Explanation

All projects conducted by the AES and Extension are subjected to a peer review process. Each college at Colorado State University has adopted a process for conducting a peer review on all AES and Extension projects submitted for support by state and federal funds. Criteria, as requested by NIFA reviewers, include alignment with Extension's Strategic Plan, college priorities, resource allocation, and meeting needs of Coloradoans.

As of January 2014, Extension specialists and agents team together in ten Planning and Reporting Units (PRUs), jointly lead by a specialist and an agent. Each PRU has completed a Logic Model, including providing a situation statement,

assumptions, identification of inputs, outputs and outcomes (including learning, action, and condition), and an evaluation plan. The Plans of Work (POW) were revised during fall, 2014, and submitted for entry into the online Colorado Planning and Reporting System (CPRS) early in 2015 for a two-year period. Last fall the PRUs met to confirm, update, or revise their POWs for 2018-2019. POWs are now available as resources for agents' individual Plans to Invest (PTIs). At the county level, all county Extension programs are required at a minimum to have an Extension Advisory Committee composed of constituents, partner agencies (such as the school districts, councils on aging, county health and human services, commodity groups, etc.). In addition, many counties have multiple program advisory groups that guide the county staff in identification of specific programs of emphasis. In the most recent survey of these committees, 62 Extension county programs (in 54 county offices) had 112 advisory committees involving close to 2,000 individuals in the program review process. County programs are reviewed and evaluated by these county advisory groups. The primary criteria is meeting needs in the county. NOTE: Extension will be moving to a different reporting system by Digital Measures. The process is yet young, so it is unclear what changes may be required in the planning processes for Extension.

III. Stakeholder Input

1. Actions to Seek

1. Actions taken to seek stakeholder input that encouraged their participation

Use of media to announce public meetings and listening sessions

Targeted invitation to traditional stakeholder groups

Targeted invitation to non-traditional stakeholder groups

Targeted invitation to traditional stakeholder individuals

Targeted invitation to non-traditional stakeholder individuals

Targeted invitation to selected individuals from general public

Survey of traditional stakeholder groups

Survey of traditional stakeholder individuals

Survey of the general public

Survey specifically with non-traditional groups

Survey specifically with non-traditional individuals

Survey of selected individuals from the general public

Other (Survey of County Commissioners regarding Extension Programs in their county.)

Brief explanation.

The AES and Extension are active participants in meetings of Advisory Committees consisting of state, county, and organizational leaders. AES and Extension programs are discussed and input is solicited on future priorities for research activities. In addition, the AES regularly participates in meetings held by CSU Extension where current and future program needs are discussed. A variety of joint research programs are conducted with USDA-ARS programs in Fort Collins, Akron, and other locations as well as collaborative programs with USDA-FS, USDA-NRCS and USDA-NASS. Numerous programs are also conducted in cooperation with individuals. Regional listening sessions lead by the AES and Extension are held in the various regions of the state. Additionally, many AES research centers around the state have advisory committees that provide feedback on program direction. Both AES and Extension programs are modified to reflect the input received where appropriate and feasible.

All sessions are open to the public and advertised in the local media prior to the meeting.

Critical issues addressed by multi-state and integrated activities include the following: 1) invasive plants; 2) obesity; 3) animal and municipal waste management; 4) food safety; 5) community development; 6) water quality and environmental issues; 7) opioid use disorder (OUD) and 8) the emerging area of bioenergy.

2. Methods to Identify

1. Method to identify individuals and groups

Advisory Committees
Internal Focus Groups
External Focus Groups
Open Listening Sessions
Surveys (including the County Commissioners' Survey)
Other (Council for Agricultural Research, Extension, and Teaching)

For CSU Extension, county needs determine programming direction. These include addressing the needs of under-served and under-represented populations. Extension participated in the first cohort of CSREES-funded Change Agents States. We have maintained the system changes implemented during the initiative, as well as the Diversity Catalyst Team (DCT). Goals for Extension diversity include increasing: diversity of employees; diversity of audiences served; and cultural competency of current Extension employees. DCT seeks to support "widening our circle" to include audiences currently under-served and/or under-represented.

The AES research program is modified based on input from stakeholders. Examples include an evaluation of oilseeds that was initiated to assess bioenergy potential based on stakeholder requests; multi-disciplinary and integrated activities are conducted on invasive plants; and the goals of wheat and potato breeding programs that reflect the needs of the wheat and potato industry. In essence, ongoing interaction with stakeholders through formal and informal means is used to insure program relevancy.

3. Methods to Collect

1. Methods for collecting Stakeholder Input

Meeting with traditional Stakeholder groups
Survey of traditional Stakeholder groups
Meeting with traditional Stakeholder individuals
Survey of traditional Stakeholder individuals
Meeting specifically with non-traditional groups
Meeting with invited selected individuals from the general public
Survey of selected individuals from the general public
Other (Such as review of county Web sites to discern priorities)

The AES and Extension annually utilize multiple means of obtaining stakeholder input on programs conducted and solicit input on changes in program direction. The AES and Extension support programs in seven of the eight colleges on the Colorado State University campus as well as at nine off-campus research centers, 52 individual county offices and four area programs serving 62 of Colorado's 64 counties.

AES: Each year, the off-campus research centers hold a public meeting where research

Brief explanation.

Results are presented and proposed programs are discussed. Public input is solicited on all proposed programs. It should be noted that many of the programs discussed involve faculty and staff located on the Fort Collins campus as well as at the off-campus research centers and Extension county or area offices.

CE: Each County/Area Extension program is required to have a stakeholder advisory committee, representing all programmatic and geographic areas, as well as the diversity found in the county. Evidence of the advisory committee must be documented in performance appraisals, as well as during the regularly scheduled affirmative action reviews. These advisory committees are expected to meet on a regular basis and provide guidance on programming and target audiences. Finally, a Colorado Extension Advisory Committee (CEAC), representing program recipient groups and programmatic collaborators provides oversight and input at the state level. Extension administration pays travel expenses to two meetings each year, to encourage participation.

4. How Considered

Identify Emerging Issues
Redirect Extension Programs
Redirect Research Programs
Influence Staff Hiring Process
Inform Strategic and Action Plans
Set Priorities

The AES and Extension annually utilize multiple means of obtaining stakeholder input on programs conducted and solicit input on changes in program direction. The AES and Extension support programs in seven of the eight colleges on the Colorado State University campus as well as at nine off-campus research centers, 52 individual county offices and four area programs serving 62 of Colorado's 64 counties.

AES: Each year, the off-campus research centers hold a public meeting where research results are presented and proposed programs are discussed. Public input is solicited on all proposed programs. Field days are also utilized to showcase research onsite. It should be noted that many of the programs discussed involve faculty and staff located on the Fort Collins campus as well as at the off-campus research centers and Extension county or area offices.

CE: Yearly the county advisory committees review the county plans of work which are then incorporated into the statewide PRU plans of work. These plans, updated every two years to reflect local needs, are reviewed by the CEAC for additional input and acceptance. There is an open call for additional Planning & Reporting Units (PRUs) so that emerging priority areas may be identified and statewide focus provided, when appropriate. Diversity among stakeholders is expected, but as NIFA reviewers have noted, it is not documented.

Brief explanation.

Brief Explanation of what you learn from your Stakeholders

Local demand drives programming in Colorado. Extension no longer operates under an "expert" model, where specialists tell county educators what to do. Resources of the University are available to county offices according to local demand. Ten Planning and Reporting Units (PRUs) organize and coordinate program needs according to local demand. These groups meet f2f and by phone or Zoom to assure programming is targeted to meet local needs.

IV. Critical Issues

1 4-H Youth Development

Description:

Communities in Colorado depend on quality, contributing members of society. Fostering productive community members begins with our young people. 4-H is Colorado State University's premier youth development program. Positive youth development addresses broader developmental needs of youth, in contrast to deficit-based models which focus solely on youth problems. Positive youth development occurs from an intentional process that promotes outcomes for young people by providing opportunities and relationships and externally, through the delivery of projects and curriculum designed according to the best practices of youth development. Specific issues to be addressed by Colorado 4-H in coming years include: building civic capacity through volunteerism; youth access, equity, and opportunity; youth career or school pathways; and youth community service and leadership.

Program delivery is via one of six different delivery methods 1) Organized clubs, 2) School enrichment, 3) Short term/special interest, 4) School-age child care, 5) After school programs, 6) Camping.

Multistate efforts include: collaboration with the Western Region Program Leaders and the National Program

Leader Working Group; participation in the work of the Access, Equity, Belonging Committee; working with other states on Juntos 4-H; and group educational events such as the National Western Roundup, shooting sports championships, and the National 4-H Livestock Quiz Bowl. Integrated activities include collaboration with research faculty from Human Development and Family Studies on projects such as “Identifying Generation Z (1996-2010) Volunteerism”.

Term: Long

Science Emphasis Areas

Youth Development

2 Community Development

Description:

The goal of community development work is to develop and conduct educational programs/ research that contributes to healthy and vital communities. Specific issues to be addressed by the CD team include: diversity, equity, and inclusion; community health; community connectedness; and emergency management. Multistate work includes: community and economic development for SW Colorado in partnership with Utah; collaboration with eXtension to identify other states that have developed webinars/trainings and supports for building capacity in community health.. Integrated activities include: the Senior Access Points project;work on Economic Development Committees; active work with the Extension Disaster Education Network (EDEN), and collaborations with the CSU/CO School of Public Health, the College of Health & Human Sciences, CSU's One Health Institute, NACDEP, and Rural Development Centers (USDA and CO state offices) on projects such as the development of a validated Civic Capacity Index for use with communities and Colorado and beyond.

Term: Long

Science Emphasis Areas

Education and Multicultural Alliances

3 Cropping Systems

Description:

The goal of work on cropping systems is to enable farmers to adopt and implement improved production practices that strengthen the economic, social, and environmental condition of farms and local communities. Producer actions that improve the ability of farm operations to persist and thrive through successive generations is a primary consideration. Individuals, families and communities will benefit by having a safe, secure and sufficient food supply. Colorado farmers will be equipped to accommodate increased demand for local and global food supply without compromising the natural resource base on which we all depend. Specific issues to be addressed in the area of cropping systems include: soil health; pest management; alternative crops; ag business sustainability; and regenerative agriculture.

Multistate activities include on-farm crop research and group educational events such as field days and research presentations with states in the Midwest and intermountain west. Integrated activities include field testing of crop varieties. Integrated activities include a wide range of research such as: evaluating organic crop systems; variety trials for milo and other crops; identifying soil physical, chemical, and biological properties soil health; insect, disease, and weed pests; and high altitude research and demonstration projects.

Term: Long

Science Emphasis Areas

Agroclimate Science

Sustainable Agricultural Production Systems

4 Energy

Description:

Our energy work facilitates sustainable energy decisions in order to achieve an environmentally sustainable and economically resilient energy system. Multistate work consisted of contributing to the organization and execution of National Extension Energy Summits. Integrated activities include testing specialty crops growth under solar panels at AES stations.

Term: Long

Science Emphasis Areas

Agroclimate Science

Environmental Systems

Sustainable Agricultural Production Systems

5 Environmental Horticulture

Description:

Environmental horticulture work provides education and services to encourage the adoption of research-based best management practices (design, plant selection, establishment, and management practices) and diagnostic techniques/services by green industry professionals and the home gardener. Our goal is that professional and lay practitioners will use reasonable inputs of labor, water, fertilizers and pesticides to produce attractive, functional, cost-effective and sustainable ornamental landscapes. Specific issues to be addressed in the area of environmental horticulture include: sustainable landscapes; pollinator promotion; integrated pest management and horticultural diagnostics; and urban agriculture.

Multistate work consists of activities including publication of articles and group educational events in collaboration with colleagues from other states. Integrated work includes: projects on orchards for Colorado Master Gardeners; Kermes scale research; Plant Select demonstration gardens and variety trial research used for the development and release of best-adapted plants/vegetables for use in Colorado and the western U.S.; the Native Bee Watch citizen science program; and invasive species (emerald ash borer, Japanese beetle) and other common landscape/horticultural pest problems.

Term: Long

Science Emphasis Areas

Education and Multicultural Alliances

Environmental Systems

Sustainable Agricultural Production Systems

6 Food Systems

Description:

Food systems work results provides technical assistance for agricultural and food producers, which improves existing or exploring new marketing channels, production practices, and alternative business approaches. We also provide facilitation of community discussions around the interface between food and agricultural issues and broader social issues including public health, food safety, the environment and community development. Specific issues to be addressed in the area of food systems include: strengthening the meat value chain; cottage foods; and business management for new and beginning farmers.

Multistate work consists of: collaborations with other states on agritourism and food systems research; a Rocky Mountain Meat Summit; and publications with other western states on backyard livestock and community-supported agriculture. Integrated work consists of: agricultural economics research on meat supply chains; integrating research from Food Science and Human Nutrition that helps cottage foods producers better

understand nutrition, labeling and safe point-of-sale handling; and developing financial performance benchmarks using USDA ARMS data to understand differences in financial metrics and on-farm resource use between beginning and non-beginning farmers and ranchers.

Term: Long

Science Emphasis Areas

Agroclimate Science
Education and Multicultural Alliances
Environmental Systems
Family & Consumer Sciences
Food Safety
Human Nutrition
Sustainable Agricultural Production Systems

7 Individual, Family, and Community Well-being

Description:

When people are in a state of financial and relational wellness, they are in control, confident and focused. They have greater balance and stability so they can concentrate on the most important tasks at hand such as weathering difficulties and making progress toward their goals. Educational programming in these realms of individual and family well-being helps create strong communities. Specific issues to be addressed in the area of individual, family, and community well-being include family financial stability and healthy aging.

Multistate activities include the GRANDcares Project (funded by USDA/NIFA) with the University of Hawaii. Integrated activities include the GRANDcares Project; “Strengthening Families – SFP 10-14 Opioid Prevention project”; and a partnership with Human Development and Family Studies faculty to evaluate healthy aging programming.

Term: Long

Science Emphasis Areas

Family & Consumer Sciences

8 Livestock and Range

Description:

Livestock and range work strives for rangeland health, improved animal health and production, industry policy and regulation awareness, and economic sustainability using a broad array of methodologies that provides information, skills, and technology to producers and Extension agents. Our target audience is livestock producers, ranchers, and rangeland managers who have, or are striving for, a significant portion of their personal income coming from the farm/ranch. These may be small farms/ranches or larger scale operations. Livestock producers may also integrate cropping production systems into their operations. Specific issues to be addressed in the area of livestock and range include: ranch analysis and planning; drought; and soil health.

Multistate activities include: researching soil health treatments in New Mexico, Arizona, and California; hosting conferences; working with the national Extension Disaster Education Network; and other activities. Integrated activities include: work on a healthy soils initiative; adaptive management on rangelands through Total Ranch Analysis Colorado (TRAC) and other programs; and integrating research findings from the USDA-ARS Central Plains Experimental Range.

Term: Long

Science Emphasis Areas

9 Natural Resources

Description:

Natural resource efforts are focused on how to best manage our landscapes from the perspective of plants, animals, soils, water, and pests. Our goal is to protect these resources through our programming efforts, with special emphasis on native species. Specific issues to be addressed in the area of natural resources include ecosystem sustainability and emergency management.

Multistate efforts include group educational events such as Northern Plains Climate Hub Outreach Exchange workshops and participation in the Extension Disaster Education Network. Integrated activities include water balance and other studies as well as integration of site-specific research on watershed vulnerability into recommendations for landowners through the Watershed Assessment and Vulnerability Evaluations (WAVE) program.

Term: Long

Science Emphasis Areas

Agroclimate Science
Environmental Systems
Sustainable Agricultural Production Systems

10 Nutrition, Food Safety & Health

Description:

Nutrition, food safety and health promotion programming provides research-based education to a variety of audiences across Colorado in an effort to promote safe and healthful eating habits and a physically active lifestyle. Adoption of these behaviors may reduce the incidence of foodborne disease as well as chronic diseases, such as diabetes, heart disease, obesity and cancer. Specific issues to be addressed in the area of nutrition, food safety, and health include: diabetes prevention and management; cottage foods; and food insecurity in low-income families.

Multistate efforts include: professional development, curriculum updates, new initiatives, and evaluation support related to the national Dining with Diabetes (NDWD) Program; group educational events such as food safety conferences; and national planning sessions on food safety education. Integrated activities include projects such as research and Extension on uncured meat and involving K-12 students in service learning when growing food at AES stations (and donating surplus to local food banks).

Term: Long

Science Emphasis Areas

Food Safety
Human Nutrition